STATEMENT OF THE CLAIMS

1. (currently amended) Method for providing transmit flow control for multiple signal streams over a single Ethernet link, comprising:

receiving PDUs (protocol data units) from multiple streams at a first MAC (media access control) client;

encapsulating each PDU in a MAC frame which includes an identification of the stream to which the PDU belongs;

transmitting the MAC frames over an Ethernet link to a second MAC client;

receiving the MAC frames at the second MAC client;

decapsulating the PDUs ~~each PDU~~ in the MAC frames received at the second MAC client;

providing a plurality of buffers uniquely associated with the multiple streams supplying PDUs to the first MAC client;

for each given PDU decapsulated from the MAC frames received at the second MAC client, forwarding the given PDU to a select one of said plurality of buffers that is associated with the stream from which the given PDU originated in accordance with the identifier of the MAC frame from which the given PDU was decapsulated ~~forwarding each PDU to a port buffer associated with the stream identified in the MAC frame from which each PDU was decapsulated~~;

monitoring a fullness condition of each one of said plurality of buffers ~~buffer for fullness~~; and

transmitting a Pause control frame from the second MAC client to the first MAC client, the Pause control frame indicating the fullness condition of each one of said plurality of buffers ~~buffer~~.

2. (previously presented) The method according to claim 1, further comprising:

controlling the flow of signal streams by temporarily halting the transmission of PDUs belonging to streams associated with buffers which are indicated as congested by the Pause control frame.

3. (original) The method according to claim 1, wherein:

each MAC frame includes a pre-pended address field which identifies the stream with which the encapsulated PDU is associated.

4. (original) The method according to claim 1, wherein:

the identification is mapped onto an IEEE 802.1Q VLAN (virtual local area network) tag within the MAC frame.

5. (original) The method according to claim 1, wherein:

the identification is an IEEE 802.1Q VLAN (virtual local area network) tag within the MAC frame which is mapped to a port.

6. (previously presented) The method according to claim 1, wherein:

the Pause control frame includes a single bit identifier for each buffer for indicating the fullness condition of the associated buffer.

7. (previously presented) The method according to claim 6, wherein:

each single bit identifies an Xon/Xoff condition.

8. (previously presented) The method according to claim 1, wherein:

the Pause control frame includes a two bit identifier for each buffer for indicating the fullness condition of the associated buffer.

9. (previously presented) The method according to claim 8, wherein:

each two bit identifier identifies an Xon/Xoff/NoChange condition.

10. (previously presented) The method according to claim 1, wherein:

the Pause control frame includes a Pause timer value.

11. (previously presented) The method according to claim 10, wherein:

the Pause timer value is set to zero when the Pause control frame indicates that no buffer is experiencing congestion.

12. (previously presented) The method according to claim 11, wherein:

the Pause timer value is set to a pre-programmed Pause Time Value when the Pause control frame indicates that at least one buffer is experiencing congestion.

13. (previously presented) The method according to claim 12, further comprising:

setting a pause refresh timer each time a Pause control frame is transmitted; and

transmitting a Pause control frame at the expiration of the pause refresh timer if no Pause control frame was transmitted since the pause refresh timer was set.

14. (previously presented) The method according to claim 13, further comprising:

setting a pause delay timer each time a Pause control frame is transmitted; and

transmitting a Pause control frame at the expiration of the pause delay timer if congestion conditions have changed since the last Pause control frame was transmitted.

15. (original) The method according to claim 14, wherein:

the pause delay timer is of shorter duration than the pause refresh timer.

16. (currently amended) A method for providing flow control for multiple signal streams over a single Ethernet link, comprising:

receiving MAC frames from a MAC client, each frame containing a PDU belonging to one of the multiple signal streams and an identifier ~~indication~~ of the stream

to which the PDU belongs;

decapsulating the PDUs in the received MAC frames;

providing a plurality of buffers uniquely associated with the multiple signal streams;

for each given PDU decapsulated from the received MAC frames, forwarding the given PDU to a select one of said plurality of buffers that is associated with the stream from which the given PDU belongs in accordance with the identifier of the MAC frame from which the given PDU was decapsulated ~~and storing each PDU in a buffer associated with the stream identified in the MAC frame~~;

monitoring a fullness condition ~~the fullness~~ of each one of said plurality of buffers ~~buffer~~; and

transmitting a Pause control frame from the MAC client, the Pause control frame indicating the fullness condition of each one of said plurality of buffers ~~buffer~~.

17. (previously presented) The method of claim 16, wherein:

the Pause control frame includes a single bit identifier for each buffer for indicating the fullness condition of the associated buffer.

18. (previously presented) The method according to claim 17, wherein:

each single bit identifies an Xon/Xoff condition.

19. (previously presented) The method according to claim 16, wherein:

the Pause control frame includes a two bit identifier for each buffer for indicating the fullness condition of the associated buffer.

20. (previously presented) The method according to claim 19, wherein:

each two bit identifier identifies an Xon/Xoff/NoChange condition.

21. (previously presented) The method according to claim 16, wherein:

the Pause control frame includes a Pause timer value.

22. (previously presented) The method according to claim 21, wherein:

the Pause timer value is set to zero when the Pause control frame indicates that no buffer is experiencing congestion.

23. (previously presented) The method according to claim 22, wherein:

the Pause timer value is set to a pre-programmed Pause Time Value when the Pause control frame indicates that at least one buffer is experiencing congestion.

24. (previously presented) The method according to claim 23, further comprising:

setting a pause refresh timer each time a Pause control frame is transmitted; and

transmitting a Pause control frame at the expiration of the pause refresh timer if

no Pause control frame was transmitted since the pause refresh timer was set.

25. (previously presented) The method according to claim 24, further comprising:

setting a pause delay timer each time a Pause control frame is transmitted; and

transmitting a Pause control frame at the expiration of the pause delay timer if congestion conditions have changed since the last Pause control frame was transmitted.

26. (original) The method according to claim 25, wherein:

the pause delay timer is of shorter duration than the pause refresh timer.

27. (currently amended) A system for providing flow control for multiple signal streams over a single Ethernet link, comprising:

a first MAC (media access control) client; and

a second MAC client coupled to said first MAC client by the Ethernet link,

said first MAC client having

means for receiving PDUs (protocol data units) from multiple streams,

means for encapsulating each PDU in a MAC frame which includes an identification of the stream to which the PDU belongs,

means for transmitting the MAC frames over the Ethernet link to said second MAC client,

said second MAC client having

means for receiving the MAC frames transmitted by said first MAC client,

means for decapsulating the PDUs ~~each PDU~~ in the MAC frames received at the second MAC client,

a plurality of buffers uniquely associated with the multiple streams supplying PDUs to the first MAC client;

means, operating one each given PDU decapsulated from the MAC frames received at the second MAC client, for forwarding the given PDU to a select one of said plurality of buffers that is associated with the stream from which the given PDU originated in accordance with the identifier of the MAC frame from which the given PDU was decapsulated ~~means for forwarding each PDU to a port buffer associated with the stream identified in the MAC frame from which each PDU was decapsulated~~,

means for monitoring a fullness condition of each one of said plurality of buffers ~~buffer for fullness~~, and

means for transmitting a Pause control frame to said first MAC client, the Pause control frame indicating the fullness condition of each one of said plurality of buffers ~~buffer~~.

28. (currently amended) The system according to claim 27, further comprising:

means for receiving the Pause control frame at the first MAC client; and

means for processing the Pause control frame at the first MAC client such that PDUs from zero or more particular streams whose corresponding buffer is full as

indicated by the received Pause control frame are not transmitted as part of MAC frames communicated over the Ethernet link from the first MAC client to the second MAC client ~~means for controlling the flow of said multiple signal streams in response to said Pause control frame, including means for temporarily halting the transmission of PDUs belonging to streams associated with buffers indicated as congested by said Pause control frame~~.

29. (previously presented) The system according to claim 27, wherein:

each MAC frame includes a pre-pended address field which identifies the stream with which the encapsulated PDU is associated.

30. (previously presented) The system according to claim 27, wherein:

the identification is mapped onto an IEEE 802.1Q VLAN (virtual local area network) tag within the MAC frame.

31. (previously presented) The system according to claim 27, wherein:

the identification is an IEEE 802.1Q VLAN (virtual local area network) tag within the MAC frame which is mapped to a port.

32. (previously presented) The system according to claim 27, wherein:

the Pause control frame includes a single bit identifier for each buffer for indicating the fullness condition of the associated buffer.

33. (previously presented) The system according to claim 32, wherein:

each single bit identifies an Xon/Xoff condition.

34. (previously presented) The system according to claim 31, wherein:

the Pause control frame includes a two bit identifier for each buffer for indicating the fullness condition of the associated buffer.

35. (previously presented) The system according to claim 34, wherein:

each two bit identifier identifies an Xon/Xoff/NoChange condition.

36. (previously presented) The system according to claim 31, wherein:

the Pause control frame includes a Pause timer value.

37. (previously presented) The system according to claim 36, wherein:

the Pause timer value is set to zero when the Pause control frame indicates that no buffer is experiencing congestion.

38. (previously presented) The system according to claim 37, wherein:

the Pause timer value is set to a pre-programmed Pause Time Value when the Pause control frame indicates that at least one buffer is experiencing congestion.

39. (previously presented) The system according to claim 38, wherein:

said second MAC client includes means for setting a pause refresh timer each time a Pause control frame is transmitted,

a Pause control frame being transmitted at the expiration of the pause refresh timer if no Pause control frame was transmitted since the pause refresh timer was set.

40. (previously presented) The system according to claim 38, wherein:

said second MAC client includes means for setting a pause delay timer each time a Pause control frame is transmitted,

a Pause control frame being transmitted at the expiration of the pause delay timer if congestion conditions have changed since the last Pause control frame was transmitted.

41. (previously presented) The system according to claim 40, wherein:

the pause delay timer is of shorter duration than the pause refresh timer.

42. (currently amended) A system for providing flow control for multiple signal streams over a single ~~Ethernet for providing flow control for multiple signal streams over a single~~ Ethernet link, comprising:

means for receiving MAC frames from a MAC client over the Ethernet link, each frame containing a PDU belonging to one of the multiple signal streams and an identifier

~~indication~~ of the stream to which the PDU belongs;

a plurality of buffers uniquely associated with the multiple signal streams[[,]] ~~one buffer associated with each stream~~;

means for decapsulating the PDUs in the received MAC frames;

means, operating on each given PDU decapsulated from the received MAC frames, for forwarding the given PDU to a select one of said plurality of buffers that is associated with the stream from which the given PDU belongs in accordance with the identifier of the MAC frame from which the given PDU was decapsulated ~~and storing each PDU in a buffer associated with the stream indicated in the MAC frame~~;

means for monitoring a fullness condition ~~the fullness~~ of each one of said plurality of buffers ~~buffer~~; and

means for transmitting a Pause control frame to the MAC client, the Pause control frame indicating the fullness condition of each one of said plurality of buffers ~~buffer~~.

43. (previously presented) The system according to claim 42, wherein:

the Pause control frame includes a single bit identifier for each buffer for indicating the fullness condition of the associated buffer.

44. (previously presented) The system according to claim 43, wherein:

each single bit identifies an Xon/Xoff condition.

45. (previously presented) The system according to claim 42, wherein:

the Pause control frame includes a two bit identifier for each buffer for indicating the fullness condition of the associated buffer.

46. (previously presented) The system according to claim 45, wherein:

each two bit identifier identifies an Xon/Xoff/NoChange condition.

47. (previously presented) The system according to claim 42, wherein:

the Pause control frame includes a Pause timer value.

48. (previously presented) The system according to claim 47, wherein:

the Pause timer value is set to zero when the Pause control frame indicates that no buffer is experiencing congestion.

49. (previously presented) The system according to claim 48, wherein:

the Pause timer value is set to a pre-programmed Pause Time Value when the Pause control frame indicates that at least one buffer is experiencing congestion.

50. (previously presented) The system according to claim 49, further comprising:

a pause refresh timer; and

means for resetting the pause refresh timer each time a Pause control frame is

transmitted, wherein

a Pause control frame is transmitted at the expiration of the pause refresh timer if no Pause control frame was transmitted since the pause refresh timer was set.

51. (previously presented) The system according to claim 50, further comprising:

a pause delay timer; and

means for resetting the pause delay timer each time a Pause control frame is transmitted, wherein

a Pause control frame is transmitted at the expiration of the pause delay timer if congestion conditions have changed since the last Pause control frame was transmitted.

52. (previously presented) The system according to claim 51, wherein:

the pause delay timer is of shorter duration than the pause refresh timer.

53 - 55 (cancelled)

56. (new) A system according to claim 42, further comprising:

means for receiving the Pause control frame at the MAC client; and

means for processing the Pause control frame at the MAC client such that PDUs from zero or more particular streams whose corresponding buffer is full as indicated by the received Pause control frame are not transmitted as part of MAC frames communicated from the MAC client over the Ethernet link.

57. (new) A method according to claim 1, further comprising:

receiving the Pause control frame at the first MAC client; and

processing the Pause control frame at the first MAC client such that PDUs from zero or more particular streams whose corresponding buffer is full as indicated by the received Pause control frame are not transmitted as part of MAC frames communicated from the first MAC client to the second MAC client over the Ethernet link.

58. (new) A method according to claim 16, further comprising:

receiving the Pause control frame at the MAC client; and

processing the Pause control frame at the MAC client such that PDUs from zero or more particular streams whose corresponding buffer is full as indicated by the received

Pause control frame are not transmitted as part of MAC frames communicated from the MAC client over the Ethernet link.